

Remarks

Reconsideration of this Application is respectfully requested.

Claims 1, 2 and 4-11 are pending in the application, with claims 1, 8 and 11 being the independent claims. New claim 11 has been added.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned “**Version With Markings To Show Changes Made.**”

Based on the above Amendment and the following Remarks, Applicant respectfully requests that the Examiner reconsider all outstanding objections and rejections and that they be withdrawn.

Acknowledgement of Allowed Subject Matter

The indication that claims 2 and 4-10 contain allowable subject matter is gratefully noted. New claim 11 corresponds to claim 2 rewritten in independent form, without the present amendments to the last line of claim 1. The dependency of claim 4 has been changed from claim 2 to claim 11.

Rejections under 35 U.S.C. § 112

Claim 1 has been amended to overcome the rejection under 35 U.S.C. §112, second paragraph.

Rejections under 35 U.S.C. § 103

Claims 1, 8 and 9 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Orihara in view of Stephan.

Claims 1 and 8 have been amended to further define the nozzle and to further distinguish over Orihara and Stephans. Specifically, claims 1 and 8 recite that the nozzle is arranged such that “air exiting the nozzle achieves a Coanda effect.” Support for this amendment can be found, for example, on page 3, line 24.

The Action acknowledges that Orihara fails to teach nozzles with a downstream wall defined by the claimed invention, and cites Stephan as teaching a nozzle with a downstream wall being formed as a steady convex curvature.

As described on pages 8 and 9 of the present application, the claimed invention achieves an unbroken continuous wall flow of blown air and tobacco by utilizing the Coanda effect. This enables a 50% reduction in air pressure with the same quantity of air as compared to conventional sliding arrangements, such as that shown in Fig. 2. The Coanda effect dictates that the flow of air along the curved downstream wall follows the downstream wall into the sliding surface of the guide track.

Stephans does not teach a nozzle that utilizes the Coanda effect. Stephan teaches a nozzle with geometrical dimensions (angle $> 45^\circ$ and $R = 2-5 \times$ sheet-metal thickness) that would not allow achievement of a Coanda effect. Furthermore, Stephans explicitly teaches away

from an arrangement that would result in the Coanda effect. Stephans states that turbulent air would create negative pressures and vacuum regions that would pull sheets to the guide plate. (col. 1, lines 43-49) To avoid this disadvantageous condition, Stephans proposes an air jet which has a vertical component much greater than the horizontal component. This serves to “push” the sheet away from the path to prevent sticking and smearing. The Action recognizes and acknowledges this intent of Stephans by citing it as a motivation for providing the nozzle. The Action states: “it would have been obvious...to form the downstream wall of Orihara’s nozzles in a convex curvature to reduce vacuum zones and negative pressures as taught by Stephan et al. in order to provide a more uniform conveying current resulting in less variations of the filling density of the cigarettes being made.”

In contrast, the present invention intentionally creates vacuum zones of the Coanda effect to aid in conveyance of the particles. The tobacco particles are sucked into the air exiting from the nozzles and are accelerated. Thus, even if one combined Stephans and Orihara, one would not have a nozzle creating the Coanda effect, as in the claimed invention, because Stephans explicitly teaches away from it. Thus, it is clear that claims 1 and 8 distinguish over Orihara and Stephans.

It is also respectfully submitted that one skilled in the art would not modify conveyor of Orihara with the nozzle arrangement of Stephans. In contrast to the sheets of Stephans, incorporating a nozzle with a steep vertical component into the tobacco particle conveyor of Orihara would result in the tobacco particles being blown into chamber 60 and prevent the

particles from reaching suction belt 72. The sheets of Stephans serve to deflect the air in the horizontal direction and act, in effect, as the upper wall of the air channel. The tobacco particles of Orihara would serve no corresponding function. Accordingly, the combination would not achieve an advantageous result and would not be obvious to one skilled in the art.

Claim 8 further distinguishes over Orihara by specifying that the guide track has a sliding surface extending from the tobacco inlet to the tobacco outlet and is interrupted by the nozzle. In a previous Action, the Examiner argued that claim 1 did not distinguish over the sliding surface formed solely by surface segment 38a of Orihara. It is respectfully submitted that claim 8 does distinguish. Reciting a sliding surface formed by a generatrix distinguishes over the entire sliding surface of Orihara (element 38) and reciting that the sliding surface is interrupted by nozzles distinguishes over the single section of Orihara (element 38a).

Claim 9 depends from claim 8 and is allowable as depending from an allowable claim. Claim 9 further distinguishes over Orihara by reciting that the guide track is made up of discrete track elements. As a visual example, this embodiment reads on Fig. 3 of the specification. Orihara has a track element 38 with separate segments, but is made up of single element.

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Conclusion

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. Applicant believes that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is hereby invited to telephone the undersigned at the number provided.

A Notice of Allowance with claims 1, 2 and 4-11 is respectfully requested.

Respectfully submitted,

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Version With Markings To Show Changes Made

In the Claims:

1. (Twice Amended) A device for creating a spread-out stream of tobacco fibers, comprising:

a concave-curved guide track along which the fiber stream of tobacco fibers are conveyed, the guide track having a generatrix based on a uniform curve, a portion of the concave-curved guide track being formed by a convex sliding surface; and

at least one air nozzle having an air flow opening interrupting the guide track so that air existing the nozzle acts in a conveyance direction of the fiber stream for spreading out the tobacco fibers, wherein the nozzle has a downstream wall, in relation to the conveyance direction of the fiber stream, which makes a transition into [the concave sliding surface of] the guide track in a steady convex curvature such that air exiting nozzle achieves a Coanda effect.

4. (Twice Amended) The device in accordance with claim 11 [2], wherein the at least one nozzle comprises a plurality of nozzles following each other in the conveying direction of the fiber stream and that interrupt the sliding surface.

8. (Amended) A device for creating a spread-out stream of tobacco fibers, the device receiving tobacco from an inlet portion and supplying tobacco to an outlet portion, comprising:

a concave-curved guide track along with the fiber stream of tobacco fibers are conveyed,

the guide track having a sliding surface extending from the inlet portion to the outlet portion, the sliding surface being formed with a generatrix based on a uniform curve; and

at least one air nozzle having an air flow opening interrupting the sliding surface so that air exiting the nozzle acts in a conveyance direction of the fiber stream for spreading out the tobacco fibers, wherein the nozzle has a downstream wall, in relation to the conveyance direction of the fiber stream, which makes a transition into the concave-curve guide track in a steady convex curvature such that air exiting the nozzle achieves the Coanda effect.